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MAY 23 1990

W. F. KUHN

PHILIP MORRIS U. S. A.

INTER-OFFICE CORRESPONDENCE

Richmond, Virginia

To: Mr. W. F. Kuhn **Date:** May 22, 1990

From: Garland V. Carter

Subject: The Effects of Extinguishing a Cigarette on Its Dynamic RTD

This investigation was conducted using the recently developed five port smoking instrument capable of measuring RTD and ventilation changes as cigarettes are smoked. The purpose of this investigation was to determine whether the increased dynamic RTD observed upon lighting a cigarette and during the first few puffs is attributed to the "impervious nature" of the coal or to the increased viscosity of the gases flowing through the rod.

The results of this investigation indicate the increased viscosity of the heated gases causes the increased dynamic RTD. Several runs (five cigarettes/run) of cigarettes screened for RTD and ventilation were smoked on the dynamic smoking machine to establish the dynamic profile for the models tested. Two additional runs of the cigarettes were smoked, but extinguished with liquid nitrogen after the second or third puff. Liquid nitrogren extinguishes the coal, but does not affect other physical characteristics of the coal. The cigarettes were reinserted into the ports of the dynamic RTD instrument and subsequent puffing resumed. In every case, the dynamic RTD of the puffs after extinguishing was significantly lower than the equivalent puff of the non-extinguished profile (see Figure A, B-1, C-1, D-1, E, F). Dynamic ventilation reflected similar decreases after extinguishing due to the decreased RTD (see Figures B-2, C-2, D-2).

GVC:rad

Garland V. Carter

cc: Mr. W. Claflin
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Central File

Attachments

Ed: I "need" some help in understanding what was the objective.
Let's discuss
Bill

PM3000784911

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